

Form PTO-1449 Modified

List of Patent and Publications
Cited by Applicant
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U.S. Department of Commerce
Patent and Trademark Office

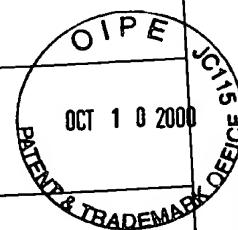
Docket No.
ISIS-4390

Serial No.
09/594,387

Applicant
Muthiah Manoharan

Filing Date
June 15, 2000

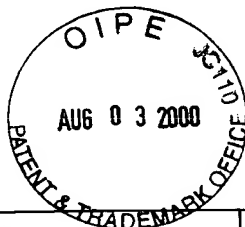
Group
Not Yet Assigned

**U. S. PATENT DOCUMENTS**

Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>ms</i>	AA	4,973,745	11/27/90	Blaschke, et al.	562	401
<i>ms</i>	AB	5,416,016	05/16/95	Low, et al.	435	240.1
<i>ms</i>	AC	5,607,691	03/04/97	Hale, et al.	424	449
<i>ms</i>	AD	5,714,142	02/03/98	Blaney, et al.	424	85.2

FOREIGN PATENT DOCUMENTS

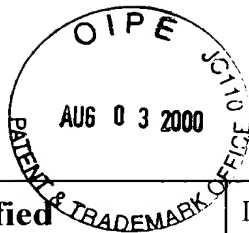
Examiner Initial		Document No.	Date	Country	Translation	
					YES	NO
EXAMINER <i>ms</i>				DATE CONSIDERED 9/30/01		



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Form PTO-1449 Modified List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office		Docket No. ISIS-4390	Serial No. 09/594,387
		Applicant Muthiah Manoharan	
		Filing Date June 15, 2000	Group Not Yet Assigned
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
<i>MS</i>	AA	Agrawal et al., "Effect of aspirin on protein binding and tissue disposition of oligonucleotide phosphorothioate in rats," <i>J. Drug Targeting</i> , 1998 , 5, 303-313	
	AB	Asseline, U. et al., "Nucleic acid-binding molecules with high affinity and base sequence specificity: Intercalating agents covalently linked to oligodeoxynucleotides", <i>Proc. Natl. Acad. Sci.</i> , 1984 , 81, 3297-3301	
	AC	Atherton, E. et al., "The Fluorenylmethoxycarbonyl Amino Protecting Group", <i>The Peptides</i> , 1987 , 9, 1-39	
	AD	Beaucage, S.L. et al., "Advances in the Synthesis of Oligonucleotides by the Phosphoramidite Approach", <i>Tetrahedron</i> , 1992 , 48, 2223-2311	
	AE	Buzayan, J.M. et al., "Satellite tobacco ringspot virus RNA: A subset of the RNA sequence is sufficient for autolytic processing", <i>Proc. Natl. Acad. Sci. USA</i> , 1986 , 83, 8859-8862	
	AF	Chollet, A., "Selective Attachment of Oligonucleotides to Interleukin 1 β and Targeted Delivery to Cells", <i>Nucleosides & Nucleotides</i> , 1990 , 9, 957-966	
	AG	Cook, P.D., "Medicinal Chemistry of Antisense Oligonucleotides - future opportunities", <i>Anti-Cancer Drug Design</i> , 1991 , 6, 585-607	
	AH	Corey, D.R. et al., "Generation of a Hybrid Sequence-Specific Single-Stranded Deoxyribonuclease", <i>Science</i> , 1987 , 238, 1401-1403	
	AI	Corey, D.R. et al., "Sequence-Selective Hydrolysis of Duplex DNA by and Oligonucleotide-Directed Nuclease", <i>J. Am. Chem. Soc.</i> , 1989 , 111, 8523-8525	
<i>✓</i>	AJ	Crooke, S.T. et al., "Pharmacokinetic Properties of Several Novel Oligonucleotide Analogs in mice", <i>J. Pharmacol. Exp. Therapeutics</i> , 1996 , 277, 923-937	
EXAMINER <i>MS</i>		DATE CONSIDERED <i>9/30/01</i>	

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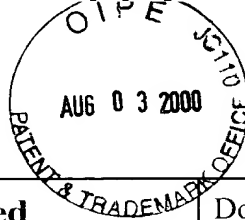
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Group
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	AK	Delgado, C. et al., "The Uses and Properties of PEG-Linked Proteins", <i>Crit. Rev. in Therapeutic Drug Carrier Sys.</i> , 1992 , 9, 249-304
	AL	Dreyer, G.B. et al., "Sequence-specific cleavage of single-stranded DNA: Oligodeoxynucleotide-EDTA-Fe(II)", <i>Proc. Natl. Acad. Sci.</i> , 1985 , 82, 968-972
	AM	Englisch, U. et al., "Chemically Modified Oligonucleotides as Probes and Inhibitors", <i>Angew. Chem. Int. Ed. Eng.</i> , 1991 , 30, 613-629
	AN	Forster, A.C. et al., "Self-Cleavage of Virusoid RNA is Performed by the Proposed 55-Nucleotide Active Site", <i>Cell</i> , 1987, 50, 9-16
	AO	Freier, S.M. et al., "The ups and downs of nucleic acid duplex stability: structure-stability studies on chemically-modified DNA:RNA duplexes", <i>Nucl. Acids Res.</i> , 1997 , 25, 4429-4443
	AP	Guerra, F.I. et al., "Synthetic 6-Glucosyl Phospholipid as a Drug Transport System", <i>Tetrahedron Letts.</i> , 1987 , 28, 3581-3584
	AQ	Hamm, M. L. et al., "Incorporation of 2'-Deoxy-2'-mercaptocytidine into Oligonucleotides via Phosphoramidite Chemistry," <i>J. Org. Chem.</i> , 1997 , 62, 3415-3420
	AR	Haralambidis, J. et al., "The Solid Phase Synthesis of Oligonucleotides Containing a 3'-Peptide Moeity", <i>Tetrahedron Letts.</i> , 1987 , 28, 5199-5202
	AS	Haralambidis, J. et al., "Preparation of base-modified nucleosides suitable for non-radioactive label attachment and their incorporation into synthetic oligodeoxyribonucleotides", <i>Nucl. Acids. Res.</i> , 1987 , 15, 4857-4876
	AT	He et al., "Atomic structure and chemistry of human serum albumin," <i>Nature</i> , 1992 , 358, 209-215
EXAMINER 		DATE CONSIDERED 9/30/01

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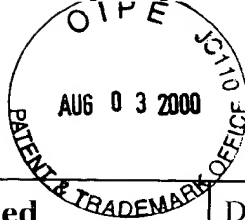
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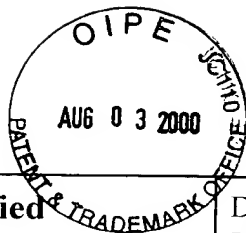
<i>ms</i>	AU	Herve et al., "Drug Binding in Plasma: A Summary of Recent Trends in the Study of Drug and Hormone Binding," <i>Clin. Pharmacokinet.</i> , 1994 , 26(1), 44-58
	AV	Jablonski, E. et al., "Preparation of oligodeoxynucleotide - alkaline phosphatase conjugates and their use as hybridization probes", <i>Nucl. Acids Res.</i> , 1986 , 14, 6115-6128
	AW	Juby et al., "Facile Preparation of 3'Oligonucleotide-Peptide Conjugates," <i>Tetra. Letts.</i> , 1991 , 32, 879-882
	AX	Kabanov, A.V., "A new class of antivirals: antisense oligonucleotides combined with a hydrophobic substituent effectively inhibit influenza virus reproduction and synthesis of virus-specific proteins in MDCK cells", <i>FEBS Letts.</i> , 1990 , 259, 327-330
	AY	Kornberg, A. et al., <i>DNA Replication</i> , 1980 , W.H. Freeman & Co., San Francisco, 4-7
	AZ	Krieg, A.M. et al., "Uptake of Oligodeoxyribonucleotides by Lymphoid Cells Is Heterogenous and Inducible", <i>Antisense Res. & Dev.</i> , 1991 , 1, 161-171
	BA	Kroschwitz, J.I., "Polynucleotides", <i>Concise Encyclopedia of Polymer Science and Engineering</i> , 1990 , John Wiley & Sons, New York, 858-859
	BB	Kumar, P. et al., "Improved Methods for 3'-O-Succinylation of 2'-Deoxyribo-And Ribonucleosides and their Covalent Anchoring on Polymer Supports for Oligonucleotide Synthesis," <i>Nucleosides & Nucleotides</i> , 1993 , 12(6), 565-584
	BC	Lemairte et al., "Specific antiviral activity of a poly(L-lysine)-conjugated oligodeoxyribonucleotide sequence complementary to vesicular stomatitis virus N protein mRNA initiation site," <i>Proc. Natl. Acad. Sci.</i> , 1986 , 84, 648-652
<i>↓</i>	BD	Leonetti, J.P. et al., "Biological Activity of Oligonucleotide-Poly(L-lysine) Conjugates: Mechanism of Cell Uptake", <i>Bioconjugate Chem.</i> , 1990 , 1, 149-153
EXAMINER <i>[Signature]</i>		DATE CONSIDERED <i>9/30/01</i>



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U.S. Department of Commerce Patent and Trademark Office		Filing Date June 15, 2000	Group Not Yet Assigned
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
<i>ms</i>	BE	Letsinger, R.L. et al., "Cholesteryl-conjugated oligonucleotides: Synthesis, properties and activity as inhibitors of replication of human immunodeficiency virus in cell culture", <i>Proc. Natl. Acad. Sci.</i> , 1989 , 86, 6553-6556	
	BF	Manoharan, M. et al., "Chemical Modifications to Improve Uptake and Bioavailability of Antisense Oligonucleotides", <i>Annals NY Acad. Sciences</i> , 1992 , 660, 306-309	
	BG	Manoharan, M. et al., "Introduction of a Lipophilic Thioether Tether in the Minor Groove of Nucleic Acids for Antisense Applications", <i>Bioorg. Med. Chem. Letts.</i> , 1993 , 3, 2765-2770	
	BH	Manoharan M. et al., "Cholic Acid-Oligonucleotide Conjugates for Antisense Applications", <i>Bioorganic Med. Chem. Letts.</i> , 1994 , 4, 1053-1060	
	BI	Manoharan M. et al., "Oligonucleotide Conjugates: Alteration of the Pharmacokinetic Properties of Antisense Agents", <i>Nucleosides and Nucleotides</i> , 1995 , 14, 969-973	
	BJ	Manoharan, M. et al., "2'-O- and 3'-O- Pyrimidine Aminothether-Containing Oligonucleotides: Synthesis and Conjugation Chemistry", <i>Tetrahedron Letts.</i> , 1995 , 3647-3650	
	BK	Manoharan, M. et al., "Lipidic Nucleic Acids", <i>Tetrahedron Letts.</i> , 1995 , 36, 3651-3654	
	BL	Martin, P., "Ein neuer Zugang zu 2'-O-Alkylribonucleosiden und Eigenschaften deren Oligonucleotide", <i>Helvetica Chimica Acta</i> , 1995 , 78, 486-504 (English summary included)	
	BM	Melikian et al., "Chemical Ionization Mass Spectra of Phenothiazine Derivatives and Their Oxygenated Analogs," <i>J. Pharm. Sci.</i> , 1977 , 66, 228-232	
	BN	Miller, P.S. et al., "A New approach to chemotherapy based on molecular biology and nucleic acid chemistry: Matagen (masking tape for gene expression)", <i>Anti-Cancer Drug Des.</i> , 1987 , 2, 117-128	
	BO	Mishra, R.K. et al., "Improved leishmanicidal effect of phosphorotioate antisense oligonucleotides by LDL-mediated delivery", <i>Biochim. Et Biophysica</i> , 1995 , 1264, 229-237	
	BP	Nelson, P.S. et al., "Bifunctional oligonucleotide probes synthesized using a novel CPG: support are able to detect single base pair mutations", <i>Nucl. Acids Res.</i> , 1989 , 17, 7187-7195	
EXAMINER <i>[Signature]</i>		DATE CONSIDERED <i>9/30/01</i>	

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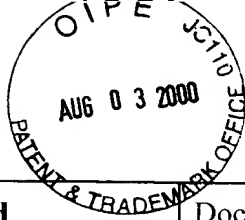
Group
Not Yet Assigned

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

<i>my</i>	BQ	Nielsen, P.E. et al., "Sequence-Selective Recognition of DNA by Strand Displacement with a Thymine-Substituted Polyamide", <i>Science</i> , 1991 , 254, 1497-1500
1	BR	Oberhauser, B. et al., "Effective incorporation of 2'-O-methyl-oligonucleotides into liposomes and enhanced cell association through modification with thiocholesterol", <i>Nucl. Acids Res.</i> , 1992 , 20, 533-538
	BS	Olson et al., "Chapter 33. Plasma Protein Binding of Drugs," <i>Annual Rep. Med. Chem.</i> , 1996 , 31, 327-336
	BT	Ouchi, T. et al., "Synthesis and Antitumor Activity of Poly(Ethylene Glycol)s Linked to 5'-Fluorouracil via a Urethane or Urea Bond", <i>Drug Des. & Disc.</i> , 1992 , 9, 93-105
	BU	Peters, Jr., "Serum Albumin," <i>Adv. Protein Chem.</i> , 1985 , 37, 161-245
	BV	Polushin, N. N. et al., "Synthesis of Oligonucleotides Containing 2'-Azido-and 2'-Amino-2'-deoxyuridine Using Phosphotriester Chemistry," <i>Tetrahedron Letts.</i> , 1996 , 37(19), 3227-3230
	BW	Ramirez, F. et al., "Nucleotidophospholipids: Oligonucleotide Derivatives with Membrane-Recognition Groups", <i>J. Am. Chem. Soc.</i> , 1982 , 104, 5483-5486
	BX	Ravasio, N. et al., "Selective Hydrogenations Promoted by Copper Catalysts. 1. Chemoselectivity, Regioselectivity, and Stereoselectivity in the Hydrogenation of 3-Substituted Steroids", <i>J. Org. Chem.</i> , 1991 , 56, 4329-4333
	BY	Rykova et al., "Serum immunoglobulins interact with oligonucleotides," <i>FEBS Letts.</i> , 1994 , 334, 96-98
	BZ	Saison-Behmoaras, T. et al., "Short modified antisense oligonucleotides directed against Ha-ras point mutation induce selective cleavage of the mRNA and inhibit T24 cells proliferation", <i>EMBO J.</i> , 1991 , 10, 1111-1118
	CA	Samukov, V.V. et al., "2-(4-Nitrophenyl) sulfonylthoxycarbonyl (Nse) Group as a Base-Labile α -Amino Protection for Solid Phase Peptide Synthesis", <i>Tetrahedron Letts.</i> , 1994 , 35, 7821-7824
<i>✓</i>	CB	Sanghvi, Y.S., "Heterocyclic Base Modifications in Nucleic acids and their Applications in Antisense Oligonucleotides", <i>Antisense Research and Applications</i> , 1993 , Chapter 15, CRC Press, Boca Raton, 273-288

EXAMINER**DATE CONSIDERED**

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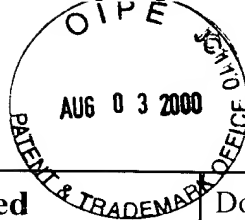
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Form PTO-1449 Modified		Docket No. ISIS-4390	SEARCHED INDEXED 1600/2900 09/594,387
List of Patent and Publications Cited by Applicant (Use several sheets if necessary)		Applicant Muthiah Manoharan	
U.S. Department of Commerce Patent and Trademark Office		Filing Date June 15, 2000	Group Not Yet Assigned
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
<i>my</i>	CC	Secrist, J.A. et al., "Synthesis and Biological Activity of 4'-Thionucleosides", <i>10th International Roundtable: Nucleosides, Nucleotides and their Biological Applications</i> , Sept. 16-20 1992 , Abstract 21, Park City, Utah, 40	
	CD	Shea, R.G. et al., "Synthesis, hybridization properties and antiviral activity of lipid-oligodeoxynucleotide conjugates", <i>Nucl. Acids Res.</i> , 1990 , 18, 3777-3783	
	CE	Svinarchuk, F.P. et al., "Inhibition of HIV proliferation in MT-4 cells by antisense oligonucleotide conjugated to lipophilic groups", <i>Biochimie</i> , 1993 , 79, 49-54	
	CF	Telser, J. et al., "Synthesis and Characterization of DNA Oligomers and Duplexes Containing Covalently Attached Molecular Labels: Comparison of Biotin, Fluorescein, and Pyrene Labels by Thermodynamic and Optical Spectroscopic Measurements", <i>J. Am. Chem. Soc.</i> , 1989 , 111, 6966-6976	
	CG	Thomson, J. B. et al., "Synthesis and Properties of Diuridine Phosphate Analogues Containing Thio and Amino Modifications," <i>J. Org. Chem.</i> , 1996 , 61, 6273-6281	
	CH	Verhart, C.G.J., "New base-labile amino-protective groups for peptide synthesis", <i>Recl. Trav. Chim. Pays-Bas</i> , 1988 , 107, 621-626	
	CI	Yamana, K. et al., "Synthesis and Interactive Properties of an Oligonucleotide with Anthraquinone at the Sugar Fragment", <i>Biconjugate Chem</i> , 1990 , 1, 319-324	
	CJ	Zuckermann, R.N. et al., "Site-Selective Cleavage of RNA by a Hybrid Enzyme", <i>J. Am. Chem. Soc.</i> , 1988 , 110, 1614-1615	
*	CK	Cohen, J.S. (ed.), <i>Oligonucleotides: Antisense Inhibitors of Gene Expression</i>, CRC Press, Inc., Boca-Raton, FL, 1989	
*	CL	Eckstein, F. (ed.), <i>Oligonucleotides and Analogs, A Practical Approach</i>, IRL Press, New York, 1991	
*	CM	Green and Wuts, <i>Protective Groups in Organic Synthesis</i>, 2d edition, John Wiley & Sons, New York, 1991	
EXAMINER <i>[Signature]</i>		DATE CONSIDERED 9/30/01	

*A copy of this reference will not be forwarded to the U.S. Patent and Trademark Office since it is believed to be too voluminous and easily obtainable by the Examiner.

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U. S. PATENT DOCUMENTS

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<i>mg</i>	CN	3,687,808	08/29/72	Merigan et al.	195	28
	CO	4,469,863	09/04/84	Ts'o et al.	536	27
	CP	4,476,301	10/09/84	Imbach et al.	536	27
	CQ	4,587,044	05/06/86	Miller et al.	530	211
	CR	4,605,735	08/12/86	Miyoshi et al.	536	27
	CS	4,667,025	05/19/87	Miyoshi et al.	536	27
	CT	4,689,320	08/25/87	Kaji	514	44
	CU	4,762,779	08/09/88	Snitman	435	6
	CV	4,789,737	12/06/88	Miyoshi et al.	536	27
	CW	4,806,463	02/21/89	Goodchild et al.	435	5

FOREIGN PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Country	Translation YES NO	
<i>mg</i>	CX	0 251 283	06/29/87	EPO	X	
	CY	WO 86/02929	05/22/86	PCT	X	
	CZ	WO 91/10671	07/25/91	PCT	X	
	DA	WO 93/07883	04/29/93	PCT	X	
	DB	WO 90/10448	09/20/90	PCT	X	

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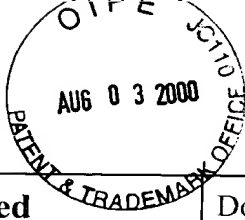
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U. S. PATENT DOCUMENTS

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<i>ME</i>	DC	4,824,941	04/25/89	Gordon et al.	530	403
	DD	4,828,979	05/09/89	Klevan et al.	435	6
	DE	4,835,263	05/30/89	Nguyen et al.	536	27
	DF	4,845,205	07/04/89	Huynh Dinh et al.	536	28
	DG	4,876,335	10/24/89	Yamane et al.	536	27
	DH	4,904,582	02/27/90	Tullis	435	6
	DI	4,948,882	08/14/90	Ruth	536	27
	DJ	4,958,013	09/18/90	Letsinger	536	27
	DK	4,981,957	01/01/91	Lebleu et al.	536	27
	DL	5,004,810	04/02/91	Draper	536	27
	DM	5,013,830	05/07/91	Ohtsuka et al.	536	27
	DN	5,023,243	06/11/91	Tullis	514	44
	DO	5,034,506	07/23/91	Summerton et al.	528	391
	DP	5,082,830	1/21/92	Brakel et al.	514	44
	DQ	5,087,617	02/11/92	Smith	514	44
	DR	5,098,890	03/24/92	Gerwartz et al.	514	44
	DS	5,109,124	4/28/92	Ramachandran et al.	536	27
	DT	5,112,963	05/12/92	Pieles et al.	536	27
	DU	5,118,800	06/02/92	Smith et al.	536	23
	DV	5,118,802	06/02/92	Smith et al.	536	27
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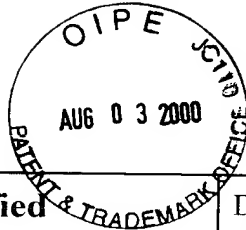
U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>my</i>	DW	5,130,302	07/14/92	Spielvogel et al.	514	45
	DX	5,134,066	07/28/92	Rogers et al.	435	91
	DY	5,135,917	08/04/92	Burch	514	44
	DZ	5,138,045	08/11/92	Cook et al.	536	27
	EA	5,149,797	09/22/92	Pederson et al.	536	27
	EB	5,166,195	11/24/92	Ecker	514	44
	EC	5,166,315	11/24/92	Summerton et al.	528	406
	ED	5,166,320	11/24/92	Wu, et al.	530	395
	EE	5,175,273	12/29/92	Bischofberger et al.	536	27
	EF	5,177,196	01/05/93	Meyer, Jr. et al.	536	22.1
	EG	5,185,444	02/09/93	Summerton et al.	544	81
	EH	5,188,897	2/23/93	Suhadolnik et al.	428	402.2
	EI	5,194,428	03/16/93	Agrawal et al.	514	44
	EJ	5,212,295	05/18/93	Cook	536	26.7
	EK	5,214,134	05/25/93	Weis et al.	536	25.3
	EL	5,214,136	05/25/93	Lin et al.	514	44
	EM	5,216,141	06/01/93	Benner	536	27.13
	EN	5,218,105	06/08/93	Cook et al.	536	25.31
	EO	5,220,007	06/15/93	Pederson et al.	536	23.1
	EP	5,223,168	06/29/93	Holt	252	142
	EQ	5,235,033	08/10/93	Summerton et al.	528	391

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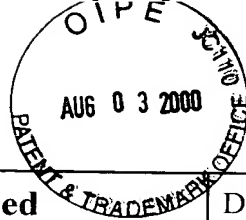
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U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>ny</i>	ER	5,242,906	09/07/93	Pagano et al.	514	44
	ES	5,245,022	09/14/93	Weis et al.	536	24.5
	ET	5,254,469	10/19/93	Warren, III et al.	435	188
	EU	5,256,775	10/26/93	Froehler	536	25.6
	EV	5,258,506	11/02/93	Urdea	536	23.1
	EW	5,262,536	11/16/93	Hobbs, Jr.	546	25
	EX	5,264,423	11/23/93	Cohen et al.	514	44
	EY	5,264,562	11/23/93	Matteucci	536	23.1
	EZ	5,264,564	11/23/93	Matteucci	536	23.1
	FA	5,272,250	12/21/93	Spielvogel et al.	530	300
	FB	5,276,019	01/04/94	Cohen et al.	514	44
	FC	5,278,302	01/11/94	Caruthers et al.	536	24.5
	FD	5,286,717	02/15/94	Cohen et al.	514	44
	FE	5,292,873	03/08/94	Rokita et al.	536	24.3
	FF	5,317,098	05/31/94	Shizuya et al.	536	23.1
	FG	5,319,080	06/07/94	Leumann	536	27.1
	FH	5,321,131	06/14/94	Agrawal et al.	536	25.34
	FI	5,359,044	10/25/94	Cook et al.	536	
	FJ	5,366,878	11/22/94	Pederson et al.	435	91.3
<i>↓</i>	FK	5,367,066	11/22/94	Urdea et al.	536	24.3
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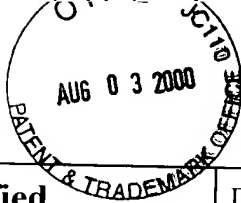
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U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>my</i>	FL	5,371,241	12/06/94	Brush et al.	549	220
	FM	5,378,825	01/03/95	Cook et al.	536	25.34
	FN	5,386,023	01/31/95	Sanghvi et al.	536	25.3
	FO	5,391,723	02/21/95	Priest	536	23.1
	FP	5,393,878	02/28/95	Leumann	536	28.2
	FQ	5,399,676	03/21/95	Froehler	536	23.1
	FR	5,403,711	04/04/95	Walder et al.	435	6
	FS	5,405,938	04/11/95	Summerton et al.	528	406
	FT	5,405,939	04/11/95	Suhadolnik et al.	530	322
	FU	5,414,077	05/09/95	Lin et al.	536	24.3
	FV	5,416,203	5/16/95	Letsinger	536	25.34
	FW	5,432,272	07/11/95	Benner	536	25.3
	FX	5,434,257	08/18/95	Matteucci et al.	536	24.3
	FY	5,446,137	08/29/95	Maag et al.	536	23.1
	FZ	5,451,463	09/19/95	Nelson et al.	428	402
	GA	5,453,496	09/26/95	Caruthers et al.	536	24.5
	GB	5,455,233	10/03/95	Spielvogel et al.	514	44
	GC	5,457,187	10/10/95	Gmeiner et al.	536	25.5
	GD	5,457,191	10/10/95	Cook et al.	536	27.13
<i>✓</i>	GE	5,459,255	10/17/95	Cook et al.	536	27.13
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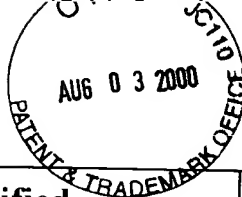
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Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>my</i>	GF	5,466,677	11/14/95	Baxter et al.	514	44
	GG	5,466,786	11/14/95	Buhr et al.	536	26.26
	GH	5,470,967	11/28/95	Huie et al.	536	24.3
	GI	5,476,925	12/19/95	Letsinger et al.	536	23.1
	GJ	5,484,908	01/16/96	Froehler et al.	536	24.31
	GK	5,486,603	01/23/96	Buhr	536	24.3
	GL	5,489,677	02/06/96	Sanghvi et al.	536	22.1
	GM	5,491,133	02/13/96	Walder et al.	514	44
	GN	5,502,177	03/26/96	Matteucci et al.	536	2606
	GO	5,506,351	04/09/96	McGee	536	55.3
	GP	5,510,475	04/23/96	Agrawal et al.	536	24.3
	GQ	5,512,439	04/30/96	Hornes et al.	435	6
	GR	5,512,667	04/30/96	Reed et al.	536	24.31
	GS	5,514,785	05/07/96	Van Ness et al.	536	22.1
	GT	5,519,126	05/21/96	Hecht	536	24.3
	GU	5,519,134	05/21/96	Acevedo et al.	544	243
	GV	5,521,302	05/28/96	Cook	536	25.31
	GW	5,525,465	06/11/96	Haralambidis et al.	435	6
	GX	5,525,711	06/11/96	Hawkins et al.	536	22.1
	GY	5,536,821	07/16/96	Agrawal et al.	536	22.1
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U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>mez</i>	GZ	5,539,082	07/23/96	Nielsen et al.	530	300
	HA	5,541,306	07/30/96	Agrawal et al.	536	22.1
	HB	5,541,307	07/30/96	Cook et al.	536	23.1
	HC	5,541,313	07/30/96	Ruth	536	24.3
	HD	5,543,508	08/06/96	Haseloff et al.	536	23.2
	HE	5,545,729	08/13/96	Goodchild et al.	536	24.5
	HF	5,545,730	08/13/96	Urdea et al.	536	28.51
	HG	5,550,111	08/27/96	Suhadolnik et al.	514	44
	HH	5,552,538	09/03/96	Urdea et al.	536	24.3
	HI	5,552,540	09/03/96	Haralambidis	536	25.34
	HJ	5,554,746	09/10/96	Ravikumar et al.	540	200
	HK	5,561,225	10/01/96	Maddry et al.	536	23.1
	HL	5,563,253	10/08/96	Agrawal et al.	536	22.1
	HM	5,565,350	10/15/96	Kmiec	435	172.3
	HN	5,565,552	10/15/96	Magda et al.	534	11
	HO	5,567,810	10/22/96	Weis et al.	536	25.3
	HP	5,567,811	10/22/96	Misiura et al.	536	25.34
	HQ	5,571,799	11/05/96	Tkachuk et al.	514	47
	HR	5,571,902	11/05/96	Ravikumar et al.	536	22.1
	HS	5,574,142	11/12/96	Meyer, Jr. et al.	536	23.1
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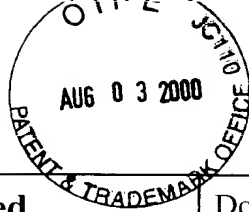
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Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>my</i>	HT	5,576,427	11/19/96	Cook et al.	536	23.1
	HU	5,578,717	11/26/96	Urdea et al.	536	26.1
	HV	5,578,718	11/26/96	Cook et al.	536	27.21
	HW	5,580,731	12/03/96	Chang et al.	435	6
	HX	5,585,481	12/17/96	Arnold, Jr. et al.	536	25.33
	HY	5,587,361	12/24/96	Cook et al.	514	44
	HZ	5,587,371	12/24/96	Sessler et al.	514	185
	IA	5,587,469	12/24/96	Cook et al.	536	23.1
	IB	5,587,470	12/24/96	Cook et al.	536	23.1
	IC	5,591,584	01/07/97	Chang et al.	435	6
	ID	5,591,722	01/07/97	Montgomery et al.	514	45
	IE	5,594,121	01/14/97	Froehler et al.	536	23.5
	IF	5,595,726	01/21/97	Magda et al.	424	9.61
	IG	5,596,086	01/21/97	Matteucci et al.	536	22.1
	IH	5,596,091	01/21/97	Switzer	536	24.5
	II	5,597,696	01/28/97	Linn et al.	435	6
	IJ	5,597,909	01/28/97	Urdea et al.	536	24.3
	IK	5,599,797	02/04/97	Cook et al.	514	44
	IL	5,599,923	02/04/97	Sessler et al.	540	145
✓	IM	5,599,928	02/04/97	Hemmi et al.	540	474
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U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>my</i>	IN	5,602,240	02/11/97	De Mesmaeker et al.	536	23.1
	IO	5,608,046	03/04/97	Cook et al.	536	23.1
	IP	5,610,289	03/11/97	Cook et al.	536	25.34
	IQ	5,610,300	03/11/97	Altmann et al.	544	244
	IR	5,614,617	03/25/97	Cook et al.	536	23.1
	IS	5,618,704	04/08/97	Sanghvi et al.	435	91.5
	IT	5,623,065	04/22/97	Cook et al.	536	23.1
	IU	5,623,070	04/22/97	Cook et al.	536	27.6
	IV	5,625,050	04/29/97	Beaton et al.	536	24.1
	IW	5,627,053	05/06/97	Usman et al.	435	91.1
	IX	5,633,360	05/27/97	Bischofberger et al.	536	22.1
	IY	5,639,873	06/17/97	Barascut et al.	536	25.3
	IZ	5,646,265	07/08/97	McGee	536	25.34
	JA	5,652,355	07/29/97	Metelev et al.	536	24.5
	JB	5,652,356	07/29/97	Agrawal	536	24.5
	JC	5,658,873	08/19/97	Bertsch-Frank et al.	510	375
	JD	5,663,312	09/02/97	Chaturvedula	536	22.1
	JE	5,670,633	09/23/97	Cook et al.	536	23.1
	JF	5,677,437	10/14/97	Teng et al.	536	23.1
	JG	5,677,439	10/14/97	Weis et al.	536	23.1

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Examiner Initial		Document No.	Date	Name	Class	Subclass
<i>My</i>	JH	5,681,941	10/28/97	Cook et al.	536	23.1
	JI	5,688,941	11/18/97	Cook et al.	536	25.3
	JJ	5,697,248	12/16/97	Brown et al.	73	290
	JK	5,700,920	12/23/97	Altmann et al.	536	221
	JL	5,700,922	12/23/97	Cook	536	23.1
	JM	5,714,166	02/03/98	Tomalia, et al.	424	486
	JN	5,714,331	02/03/98	Buchardt et al.	435	6
	JO	5,719,262	02/17/98	Buchardt et al.	530	300
	JP	5,750,692	05/12/98	Cook et al.	544	253
	JQ	5,789,573	08/04/98	Baker, et al.	536	24.5
	JR	5,846,782	12/08/98	Wickham, et al.	435	69.7
	JS	5,859,221	01/12/99	Cook et al.	536	23.1
<i>My</i>	JT	5,955,589	09/21/99	Cook et al.	536	23.1
**	JU	07/463,358	01/11/90	Cook		
**	JV	07/566,977	08/13/90	Cook et al.		
**	JW	08/383,666	02/03/95	Cook et al.		
**	JX	08/398,901	03/06/95	Cook et al.		
**	JY	09/016,520	01/30/98	Cook et al.		
**	JZ	09/123,108	07/27/98	Manoharan et al.		
**	KA	09/130,973	08/07/98	Manoharan et al.		
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**Pursuant to 37 C.F.R. 1.98(a)(2)(iii) no copy of a U.S. patent application need be included with an Information Disclosure Statement filed under 37 C.F.R. 1.97.